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ACTIVE TECTONICS OF THE LOS ANGELES BASIN

The right-lateral Elsinore, Newport-Inglewood, and Palos Verdes faults extend from the Peninsular Ranges into the LA Basin, where the Elsinore fault bifurcates into the Chino and Whittier-East Montebello faults. Most have precursors: the Chino graben for the Chino fault, the La Vida rift for the Whittier fault, the Central Uplift for the Newport-Inglewood fault, and an abrupt thickening of Miocene strata west of the Palos Verdes fault. None of these faults clearly reaches the Transverse Ranges, and they may only now be propagating northwestward out of the Peninsular Ranges.

The Santa Monica, Hollywood, and Raymond oblique-left slip faults mark the southern boundary of the Transverse Ranges. The Santa Monica fault comprises half of a flower structure that reactivates a Miocene rift. The San Jose low-angle thrust, part of a fold belt including the Walnut anticline to the south, may have a left-lateral component, the northeast extension of which may have been the source of the 1988 and 1990 Upland earthquakes. South of the Hollywood fault, the Las Cienegas, Elysian Park, Santa Fe Springs, and Coyote folds mask blind thrusts, including the Puente Hills thrust and the source of the 1987 Whittier Narrows earthquake, an echo of the Transverse Ranges in the northern Los Angeles Basin. East of Whittier Narrows, the topographic expression of the Puente Hills thrust is the Coyote Hills; the Puente Hills are uplifted on a restraining bend of the Elsinore-Whittier-East Montebello fault.